U.S. DEPARTMENT OF AGRICULTURE
Federal Grain Inspection Service
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CHAPTER 4

INSPECTION OF BROWN RICE FOR PROCESSING

4.1 DEFINITION OF BROWN RICE FOR PROCESSING

RICE (ORYZA SATIVA L.) WHICH CONSISTS OF MORE THAN 50.0 PERCENT OF KERNELS OF BROWN RICE, AND WHICH IS INTENDED FOR PROCESSING TO MILLED RICE.

BROWN RICE. WHOLE OR BROKEN KERNELS OF RICE FROM WHICH THE HULLS HAVE BEEN REMOVED.

A. Brown rice is usually determined by a cursory examination of the work sample as a whole.

B. When a detailed examination is necessary to determine brown rice, make this determination on a representative portion of not less than 50 grams of unmilled brown rice for processing.

1. Record the percent of brown rice on the work record to the nearest tenth percent.

2. If the rice contains 50 percent or less of brown rice, consider the rice to be either rough rice or milled rice and refer to the appropriate chapter for additional information.

4.2 GRADES AND GRADE REQUIREMENTS

The grades and grade requirements for all classes of brown rice for processing are shown in the United States Standards for Rice (section 68.261) and in Attachment 2, "Grades and Grade Requirements for Brown Rice for Processing," to this chapter.

4.3 SPECIAL GRADES AND SPECIAL GRADE REQUIREMENTS

A. The special grades and special grade requirements for all classes of brown rice for processing are shown in the United States Standards for Rice (section 68.263).

B. A special grade, when applicable, is supplemental to the grade assigned. Such special grades for brown rice for processing are defined as follows:

1. Parboiled brown rice for processing. Brown rice for processing in which the starch has been gelatinized by soaking, steaming, and drying.

2. Smutty brown rice for processing. Brown rice for processing which contains more than 3.0 percent of smutty kernels.

3. Glutinous brown rice for processing. Special varieties of rice which contain more than 50 percent of chalky kernels.

4. Aromatic brown rice for processing. Special varieties of rice that have a distinctive and characteristic aroma; e.g., basmati and jasmine.

4.4 WORK RECORD

Record the results of all tests and findings clearly and accurately on a laboratory ticket or similar form. This will be used as the source of the information reported on the inspection certificate. FGIS personnel shall use form FGIS-911, "Rice Sample Ticket," to record inspection results. Cooperator's shall use a similar form.

NOTE: For submitted sample inspections, results may be recorded on a form FGIS-932, "Rice Inspection Certificate - Submitted Sample Inspection," or similar form.

4.5 REPRESENTATIVE PORTION

A specified quantity of rice divided-out from the representative sample by means of an FGIS-approved device.

4.6 WORK SAMPLE

A representative portion of rice (approximate size - 1,000 grams) that is used to make all such determinations required for a particular class of rice.

4.7 FILE SAMPLE *

A. A representative portion of rice (approximate size - 1,250 grams) that may be used in conjunction with the work sample, when needed, to determine the complete grade. File samples may also be used for monitoring, retest, and appeal inspection purposes.

B. Retain file samples in appropriate containers for the required retention period. After maintaining for the required period, dispose of the file samples in accordance with established procedures. See FGIS Instruction 917-13, "Uniform File Sample Retention System for Rice, Pulses, and Processed Products Inspected Under AMA," for additional information.

4.8 PERCENTAGES AND COUNTS

A. Percentages are determined upon the basis of weight and are rounded as follows:

1. When the figure to be rounded is followed by a figure greater than or equal to 5, round to the next higher figure; e.g., report 6.36 as 6.4, 0.35 as 0.4, and 2.45 as 2.5.

2. When the figure to be rounded is followed by a figure less than 5, retain the figure; e.g., report 8.34 as 8.3, and 1.22 as 1.2.

(Revised 5/1/97)

B. Record percentages as follows:

1. For milling yield, to the nearest whole percent.

2. For all other factors, to the nearest tenth percent.

C. Record counts, for all factors determined on the basis of count, to the nearest whole number.

4.9 LABORATORY SCALES

Weigh samples and portions of samples using the proper class of FGIS-approved laboratory scales, and record the results to the correct division size. Use the table below to determine the scale class and division size required for weighing particular sized samples.

Table 1 - Laboratory Scales

Portion Size	Scale Class	Maximum Division Size	Record Results to at Least the Nearest--
120 grams or less	Precision	0.01 gram	0.01 gram
Samples for moisture determinations	Precision or Moisture	0.1 gram	0.1 gram
More than 120 grams	Precision, Moisture, or General	1 gram	1 gram

NOTE: See chapter 2, Equipment Handbook, for additional information.

4.10 PRELIMINARY EXAMINATION

A. The sampler must: (1) observe the uniformity of the rice as to type/class, quality, and condition; (2) make the determination for "Heating"; (3) draw the representative sample; and (4) report relevant information to the inspector.

B. The inspector must review the sampler's remarks/ information. If the inspector has questions or doubts the representativeness of the sample, he or she must contact the sampler and obtain the needed information or make arrangements to obtain another sample.

4.11
BASIS OF
DETERMINATION

THE DETERMINATION OF KERNELS DAMAGED BY HEAT, HEAT-DAMAGED KERNELS, PARBOILED KERNELS IN NONPARBOILED RICE, AND THE SPECIAL GRADE PARBOILED BROWN RICE FOR PROCESSING SHALL BE ON THE BASIS OF THE BROWN RICE FOR PROCESSING AFTER IT HAS BEEN MILLED TO A WELL-MILLED DEGREE. ALL OTHER DETERMINATIONS SHALL BE ON THE BASIS OF THE ORIGINAL SAMPLE. MECHANICAL SIZING OF KERNELS SHALL BE ADJUSTED BY HANDPICKING AS PRESCRIBED IN FGIS INSTRUCTIONS OR BY ANY METHOD WHICH GIVES EQUIVALENT RESULTS.

BROKEN KERNELS SHALL BE DETERMINED BY THE USE OF EQUIPMENT AND PROCEDURES PRESCRIBED IN FGIS INSTRUCTIONS OR BY ANY METHOD WHICH GIVES EQUIVALENT RESULTS.

NOTE 1: When rice that is offered for inspection as one lot is found to contain more than 10,000 containers or 1,000,000 pounds (bulk) of rice, the lot must be sampled on the basis of two or more (approximately) equal-sized sublots of 10,000 containers or 1,000,000 pounds or less. Inspect each sublot separately. (For additional information, see Chapter 7, "Roundlot Inspection Plan" and Chapter 8, "Warehouse-Lot Inspection Plan.")

NOTE 2: When rice that is offered for inspection as one lot is subsequently found to contain portions that are distinctly different in class/type, quality, or condition, the rice in each portion shall be inspected separately.

A. Follow a systematic grading procedure. The order of procedure varies with the class and quality of the rice and the tests that are required to determine the grade. A general order of procedure is as follows:

1. Review the information on the sample ticket.

2. Examine the representative sample for odor and distinctly low quality.

3. Use an FGIS-approved divider to process the representative sample into three representative portions: (1) a work sample, (2) a file sample, and (3) a moisture portion.

NOTE: For specific information on the operation and maintenance of dividers, see chapter 3, Equipment Handbook.

4. Examine the work sample for:

Class
Type

Test weight (if requested)

5. Divide the work sample into two representative portions: 750 grams and 500 grams.

6. Examine the 500-gram portion for infestation, paddy kernels, and seeds.

7. Reduce the 500-gram portion to 100 grams and examine the portion for related and unrelated material.

8. Reduce the 100-gram portion to 50 grams and examine the portion for paddy kernels.

9. Divide-out from the 50-gram portion, a 25-gram portion and a 15-gram portion.

10. Examine the 25 gram portion for:

Chalky kernels	Well-milled kernels
Red rice and damaged kernels	Broken kernels removed by
Other types	a 6-plate or 6-1/2 sieve

11. Examine the 15-gram portion for smutty kernels.

12. Mill the 750-gram portion and, upon request, determine the milling yield (total milled rice and whole kernels).

13. Reduce the milled rice portion to 500 grams and examine the portion for heat-damaged kernels and ungelatinized kernels.

14. Reduce the 500-gram portion of milled rice to 25 grams and examine the portion for parboiled kernels in nonparboiled rice and kernels damaged by heat.

B. When the grade (or contract compliance) of a lot or sample is determined by a narrow margin (± 0.1 percent or 1 count) on a single factor, **except for the factors heat-damaged kernels and ungelatinized kernels on non-cargo lots** another determination shall be made on another representative portion of equivalent size divided-out from the work sample or file sample. The factor result shall be based on the average of the two determinations.

4.12 MOISTURE

MOISTURE. WATER CONTENT IN BROWN RICE FOR PROCESSING AS DETERMINED BY AN APPROVED DEVICE IN ACCORDANCE WITH PROCEDURES PRESCRIBED IN FGIS INSTRUCTIONS. FOR THE PURPOSE OF THIS PARAGRAPH, "APPROVED DEVICE" SHALL INCLUDE THE MOTOMCO MOISTURE METER AND ANY OTHER EQUIPMENT THAT IS APPROVED BY THE ADMINISTRATOR AS GIVING EQUIVALENT RESULTS.

NOTE: MILLING YIELD SHALL NOT BE DETERMINED WHEN THE MOISTURE CONTENT OF THE BROWN RICE FOR PROCESSING EXCEEDS 18.0 PERCENT.

A. Determine moisture on a representative portion of exactly 250 grams of unmilled brown rice for processing.

B. Refer to chapter 5 of the Moisture Handbook for information about determining moisture using the Motomco moisture meter.

C. Record the percent of moisture on the work record and the certificate to the nearest tenth percent. If the moisture content exceeds 14.5 percent, grade the rice "U.S. Sample grade."

4.13 TYPE

THERE ARE THREE TYPES OF BROWN RICE FOR PROCESSING: LONG GRAIN, MEDIUM GRAIN, AND SHORT GRAIN.

TYPES SHALL BE BASED ON THE LENGTH-WIDTH RATIO OF KERNELS OF RICE THAT ARE UNBROKEN AND THE WIDTH, THICKNESS, AND SHAPE OF KERNELS OF RICE THAT ARE BROKEN AS PRESCRIBED IN FGIS INSTRUCTIONS.

A. The length-width ratio limitations for brown rice for processing are:

Long grain	Medium grain	Short grain
3.1 (or more) to 1	2.1 - 3.0 to 1	2.0 (or less) to 1

B. Type is usually determined by a cursory examination of the work sample as a whole.

C. When a detailed examination is necessary, determine type by measuring the length and width of 15 unbroken kernels of unmilled brown rice for processing taken at random from the work sample and determining their average length-width ratio.

1. Length is distance between the most distant tips of the kernel, including the embryo.

2. Width is the distance across the kernel at the widest point.

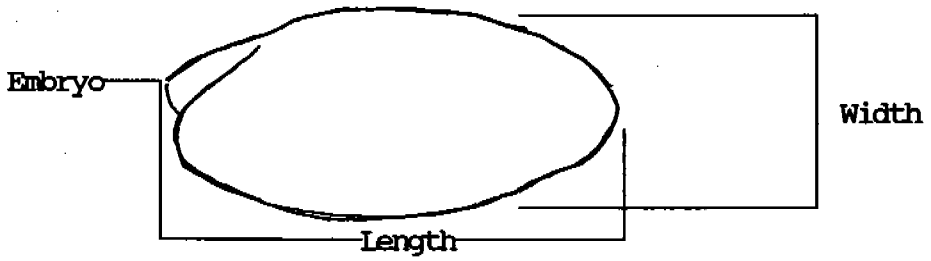

Figure 1. Measuring Brown Rice for Processing Kernels

4.14 CLASS

THERE ARE FOUR CLASSES OF BROWN RICE FOR PROCESSING: LONG GRAIN BROWN RICE FOR PROCESSING, MEDIUM GRAIN BROWN RICE FOR PROCESSING, SHORT GRAIN BROWN RICE FOR PROCESSING, AND MIXED BROWN RICE FOR PROCESSING.

CLASSES SHALL BE BASED ON THE PERCENTAGE OF WHOLE KERNELS, BROKEN KERNELS, AND TYPES OF RICE.

"LONG GRAIN BROWN RICE FOR PROCESSING" SHALL CONSIST OF BROWN RICE FOR PROCESSING WHICH CONTAINS MORE THAN 25.0 PERCENT OF WHOLE KERNELS OF BROWN RICE AND NOT MORE THAN 10.0 PERCENT OF WHOLE OR BROKEN KERNELS OF MEDIUM OR SHORT GRAIN RICE.

"MEDIUM GRAIN BROWN RICE FOR PROCESSING" SHALL CONSIST OF BROWN RICE FOR PROCESSING WHICH CONTAINS MORE THAN 25.0 PERCENT OF WHOLE KERNELS OF BROWN RICE AND NOT MORE THAN 10.0 PERCENT OF WHOLE OR BROKEN KERNELS OF LONG GRAIN RICE OR WHOLE KERNELS OF SHORT GRAIN RICE.

"SHORT GRAIN BROWN RICE FOR PROCESSING" SHALL CONSIST OF BROWN RICE FOR PROCESSING WHICH CONTAINS MORE THAN 25.0 PERCENT OF WHOLE KERNELS OF BROWN RICE AND NOT MORE THAN 10.0 PERCENT OF WHOLE OR BROKEN KERNELS OF LONG GRAIN RICE OR WHOLE KERNELS OF MEDIUM GRAIN RICE.

"MIXED BROWN RICE FOR PROCESSING" SHALL BE BROWN RICE FOR PROCESSING WHICH CONTAINS MORE THAN 25.0 PERCENT OF WHOLE KERNELS OF BROWN RICE AND MORE THAN 10.0 PERCENT OF OTHER TYPES."

A. Class is usually determined by a cursory examination of the work sample as a whole.

B. When a detailed examination is necessary to determine whole kernels for class, make this determination on a representative portion of not less than 25 grams of unmilled brown rice for processing.

1. Record the percent of whole kernels on the work record to the nearest tenth percent.

2. If the rice contains 25 percent or less of whole kernels, show the designation "Brown Rice for Processing" on the gradeline of the certificate.

C. When a detailed examination is necessary to determine other types for class, make this determination on a representative portion of not less than 25 grams of unmilled brown rice for processing.

1. Record the percent of each type on the work record to the nearest tenth percent.

2. If the rice contains more than 10 percent of:

a. Whole or broken kernels of medium or short grain rice in long grain rice;

b. Whole and broken kernels of long grain rice or whole kernels of short grain rice in medium grain rice; or

c. Whole or broken kernels of long grain rice or whole kernels of medium grain rice in short grain rice;

Grade the rice "Mixed brown rice for processing," and record the percentages of whole kernels of each type of rice in order of predominance and the percentages of broken kernels of each type, in order of predominance, on the gradeline of the certificate.

* 4.15
* ODOR

A. Determine odor on the basis of a representative portion of well-milled brown rice for processing. Upon request, a non-grade odor determination may be made on the basis of the brown rice, as is.

1. An indication of an off-odor (i.e., musty, sour, and commercially objectionable foreign odor) can sometimes be detected by smelling the brown rice at the time of sampling. This can serve to "flag" potential problems. But, make the final odor determination on a portion of the sample milled to a well-milled degree.

NOTE: If there is any question as to the odor of the brown rice when the sample is being taken, put the sample into an airtight container to preserve its condition for further examination in the laboratory.

2. A musty odor shall be any odor that is earthy, moldy, or ground-like. Do not confuse a burlap bag odor with a musty odor.

3. A sour odor shall be any odor that is rancid, sharp, or acrid.

4. A commercially objectionable foreign odor shall be any odor that is not normal to rice and that, because of its presence, renders the rice unfit for normal commercial usage; e.g., fertilizer, hides, oil products, skunk, smoke, fire-burnt, and decaying animal and vegetable matter odors.

5. Fumigant or insecticide odors are not considered as commercially objectionable foreign odors, unless they are caused by a fumigant or insecticide that does not dissipate quickly. When the sample of rice contains a fumigant or insecticide odor that prohibits a true odor determination, the following guidelines shall apply:

a. The representative sample of rice shall be allowed to air-out under forced ventilation (a fume hood) in an open metal container (e.g., a pan) for up to 4 hours; and

b. If the fumigant or insecticide odor still prohibits the determination of the rice's true odor after 4 hours, the rice shall be considered as having a commercially objectionable foreign odor.

WARNING: When sampling rice, check for placarded railcars. If a car is placarded (or if a car isn't placarded but a fumigant odor is detected), don't enter the car or sample the rice, and notify your supervisor immediately. * * * * *

NOTE: Aromatic (scented) rice shall not be considered as having a commercially objectionable foreign odor if it has an odor known to be common to such rice. Non-aromatic varieties of rice, which have a scented rice-like aroma, shall be considered to have a commercially objectionable foreign odor.

B. When rice is determined to be musty, sour, or have a commercially objectionable foreign odor, record the type of odor on the work record and in the Remarks section of the certificate, and grade the rice "U.S. Sample grade."

4.16
HEATING

A. Determine heating on the basis of the lot as whole.

1. When high temperature develops in rice as the result of excessive respiration, such rice is heating.

2. Heating rice usually gives off a sour or musty odor.

3. Care should be taken never to confuse rice that is warm due to storage in bins, cars, or other containers during hot weather with rice that is heating from excessive respiration.

B. When applicable, show the term "Heating" on the work record and in the Remarks section of the certificate, and grade the rice "U.S. Sample grade."

4.17
DISTINCTLY
LOW QUALITY

A. Determine distinctly low quality on the basis of the lot as a whole or the representative sample as a whole.

B. Brown rice for processing that is obviously affected by other unusual conditions which adversely affect the quality of the rice and which cannot be graded properly by use of the grading factors specified or defined in the standards shall be considered as being of distinctly low quality; e.g., rice found to contain large debris, stones, glass, metal fragments, bird droppings, rodent droppings, castor beans, crotalaria seeds, treated seeds, or toxic substances.

C. When applicable, show the statement "Distinctly low quality on account of (cause or reason)." on the work record and in the Remarks section of the certificate, and grade the rice "U.S. Sample grade."

4.18
INSECT
INFESTATION

NOTE: "Weevils" shall include coffee bean weevils, broadnosed grain weevils, rice weevils, granary weevils, maize weevils, and lesser grain borers. "Other live insects" shall include beetles, moths, meal worms, and other insects injurious to stored rice described in ARS Handbook No. 500.

A. Determine infestation on the basis of a representative portion of approximately 500 grams of unmilled brown rice for processing, the lot as a whole, and/or a component sample taken during continuous loading/unloading.

1. Examine a representative portion.

a. If no live insects are found in the portion, make no further check of the sample for insects.

b. If two or more live insects are found, consider the rice to be "U.S. Sample grade."

c. If one live insect is found, cut another representative portion of approximately 500 grams from the file sample. (Use the rest of the representative sample if the file sample is less than 500 grams.)

(1) If one or more live insects are found in the second portion, consider the rice to be "U.S. Sample grade."

(2) If no live insects are found in the second portion, do not consider the rice to be "U.S. Sample grade."

2. Examine the rice in the lot; i.e., the surface area of the lot and the area around the lot.

a. If no live insects are found in, on, or about the lot, make no further check of the lot for insects.

b. If two or more live insects are found, consider the rice to be "U.S. Sample grade."

3. Examine the component samples 1/ taken during continuous loading/unloading.

a. Divide-out from each component sample a representative portion of approximately 500 grams.

b. Examine the representative portion for live insects.

(1) If no live insects are found in the representative portion, make no further check of the component for insect.

(2) If two or more live insects are found, consider the rice to be "U.S. Sample grade."

1/ As specified in Chapter 7, "Roundlot Inspection." For shiplots and bargelots, a component sample may not represent more than 500,000 pounds of rice and each sublot/lot must contain two or more approximately, equal-sized components.

(3) If one live insect is found, cut another representative portion of approximately 500 grams from the component sample.

(a) If one or more live insects are found in the second portion, consider the rice to be "U.S. Sample grade."

(b) If no live insects are found in the second portion, do not consider the rice to be "U.S. Sample grade."

B. When applicable, show "U.S. Sample grade on account of live insects" on the work record and in the Remarks section of the certificate, and grade the rice "U.S. Sample grade."

4.19
TEST WEIGHT
PER BUSHEL

NOTE: This factor is not provided for under the U.S. Standards for Brown Rice for Processing, but may be determined upon request.

A. Determine test weight per bushel on a representative portion of approximately 1,000 grams of unmilled brown rice for processing.

B. See chapter 1 of the Grain Inspection Handbook, Book II, for information about performing test weight per bushel determinations.

C. Record the test weight per bushel on the work record to the nearest tenth of a pound and show one of the following statements in the Remarks section of the certificate:

1. "Test weight per bushel of (amount) pounds."

2. "Test weight per bushel of (amount) pounds is approximately equivalent to (amount) kilograms per hectoliter." (Kilograms per hectoliter is determined by multiplying the test weight per bushel by 1.287.)

NOTE: Bulk density may be determined by dividing the test weight per bushel by 1.2445. Bulk density is the number of pounds in one cubic foot.

4.20
MILLING
YIELD

MILLING YIELD. AN ESTIMATE OF WHOLE KERNELS AND TOTAL MILLED RICE (WHOLE AND BROKEN KERNELS COMBINED) THAT IS PRODUCED IN THE MILLING OF BROWN RICE FOR PROCESSING TO A WELL-MILLED DEGREE.

NOTE: MILLING YIELD SHALL NOT BE DETERMINED WHEN THE MOISTURE CONTENT OF THE BROWN RICE FOR PROCESSING EXCEEDS 18.0 PERCENT.

A. Determine milling yield on a representative portion of 750 grams of unmilled brown rice for processing.

1. Divide-out a representative portion of between 725 and 775 grams.

2. Add or remove kernels (by finger-pinching, not pouring) until the required portion is obtained.

B. Milling yield is determined by converting the brown rice for processing to milled rice and then hand-picking the whole kernels from the total milled rice portion.

C. Mill the brown rice for processing.

1. If the miller has not been used recently, warm-up the miller, as follows:

a. Place approximately 750 grams of milled rice in the milling chamber with a 2-pound weight on the weight holder.

b. Make three consecutive 30-second runs.

c. Thoroughly clean the miller.

2. Proceed with the milling of the 750-gram portion, using a two-bar, 3/64-inch oblong screen.

3. Set the miller's timer switch at exactly 30 seconds.

4. Tilt the chamber so that the rice will flow uniformly beneath the milling cylinder, and pour the entire portion of brown rice into milling chamber.

5. Close the milling chamber and return it to the milling position.

6. Position the saddle and weight arm on the milling chamber.

7. Position the weight holder on the weight arm.

8. Position the prescribed weight on the weight holder for the type of rice to be milled.

Table 3 - Prescribed Weight

Type of Rice	Milling Cycle	Brushing Cycle
Long Grain	2 pounds	0 pounds
Medium Grain (Southern)	7 pounds	0 pounds
Medium Grain (Western)	10 pounds	2 pounds
Short Grain (Southern)	12 pounds	0 pounds
Short Grain (Western)	10 pounds	2 pounds

NOTE: For Mixed brown rice for processing, use the weight prescribed for the type of rice that predominates in the mixture.

9. Start the miller for the 30-second milling cycle.

10. After milling, reduce the weight to the brushing cycle requirements.

11. Start the miller for the 30-second brushing cycle.

12. After brushing, remove the weights, weight holder, weight arm, and saddle.

13. Clean the miller and the hopper.

14. Place a container under the hopper opening and transfer the rice from the milling chamber into the container. Do not close or seal the container.

15. Allow the sample to cool to room temperature before removing it from the container.

16. Examine the rice for milling degree. If it is determined that the rice is not equal to or better than the interpretive line sample for "well-milled" rice, pour the rice back into the miller and repeat the brushing cycle.

D. Determine the percentage of total milled rice.

1. Weigh the rice after milling and divide this weight by the weight of the rice before milling.

EXAMPLE: The sample of brown rice for processing weighs 750 grams before milling. After milling, the sample weighs 650 grams.

650 g ÷ 750 g = 86.6 % = 87 % total milled rice

2. Record the percentage of total milled rice on the work record and the certificate to the nearest whole percent.

E. Determine the percentage of whole kernels.

WHOLE KERNELS. UNBROKEN KERNELS OF RICE AND BROKEN KERNELS OF RICE WHICH ARE AT LEAST THREE-FOURTHS OF AN UNBROKEN KERNEL.

1. Divide out a representative portion of not less than 40 grams of well-milled brown rice for processing.

2. Remove the whole kernels from the 40-gram portion using any device or method that will facilitate the separation of the whole kernels from the broken kernels.

3. Determine the percentage of whole kernels in the 40-gram portion and then multiply this percentage by the percentage (unrounded) of total milled rice.

EXAMPLE: The 40-gram portion contains 84.9 percent of whole kernels. The percentage of total milled rice is 86.6 percent before rounding.

34.51 g ÷ 40.61 g = 84.9 %

84.9 % X 86.6 % = 73.5 % = 74 % whole kernels

4. Record the percentage of whole kernels on the work record and the certificate to the nearest whole percent.

4.21
MILLING
ANALYSIS

A. Milling analysis provides an estimate of the quantity (percentage) of whole kernels, second head-sized kernels, screenings-sized kernels, and brewers-sized kernels that are produced in the milling of a lot of brown rice for processing.

NOTE: This factor is not provided for under the U.S. Standards for Brown Rice for Processing, but may be determined upon request.

B. The following definitions are applicable only to this determination.

1. Whole Kernels. Unbroken kernels of rice and broken kernels of rice that are at least three-fourths of an unbroken kernel.

2. Second Head Kernels. Broken kernels of rice and other material that remain on top of a 6 sieve.

3. Screenings Kernels. Broken kernels of rice and other material that pass through a 6 sieve but remain on top of a 5 1/2 sieve.

4. Brewers Kernels. Broken kernels of rice and other material that pass through a 5 1/2 sieve.

C. Determine the percent of whole kernels on a representative portion of not less than 25 grams of well-milled brown rice for processing.

1. Remove the broken kernels from the 25-gram portion using any device or method that will facilitate the separation of the broken kernels from the whole kernels.

2. Determine the percent of whole kernels by subtracting the percent of broken kernels from 100.0 percent. For example:

100.0 % - 19.6 % TBK = 80.4 % WK

3. Calculate the adjusted base by subtracting the percent of whole kernels from 100 percent and then dividing the resultant by 100. For example:

(100 % - 80.4 % WK) ÷ 100 = .80 adjusted base

D. Determine the percent of screenings kernels and brewers kernels on a representative portion of not less than 125 grams.

1. Nest a 6 sieve on top of a 5 1/2 sieve in a bottom pan.

2. Place the sieves in a mechanical grain sizer and set the timer to 20.

3. Put the rice in the center of the top sieve and actuate the sizer.

NOTE: If a mechanical sizer is unavailable, hold the sieves and bottom pan level and, using a steady motion, move the sieves from right to left approximately 10 inches, and return from left to right to complete one sieving operation. Repeat this operation 20 times.

4. Return the material remaining in the perforations of the sieve to the portion that remains on top of the sieve.

5. Consider all material that passed through the 6 sieve, but remains on top of the 5 1/2 sieve, as screenings kernels. Do not hand-adjust the separation.

6. Consider all material that passes through the 5 1/2 sieve as brewers kernels. Do not hand-adjust the separation.

E. Adjust the percent of screenings and brewers by multiplying the "actual" percent of screenings and brewers by the adjusted base. For example:

2.1 % SMR X .80 = 1.7 % SMR
1.3 % BMR X .80 = 1.0 % BMR

F. Determine the percent of second head kernels by adding the percent of screenings and brewers kernels together and then subtracting that total from the percent of broken kernels. For example:

19.6 % TBK - (1.7 % SMR + 1.0 % BMR) = 16.9 % SHMR

G. Record the percent of whole kernels, second head kernels, screenings kernels, and brewers kernels on the work record and the certificate to the nearest whole percent.

4.22
PADDY KERNELS

PADDY KERNELS. WHOLE OR BROKEN UNHULLED KERNELS AND WHOLE OR BROKEN KERNELS OF RICE HAVING A PORTION OR PORTIONS OF THE HULL REMAINING WHICH COVER ONE-HALF (1/2) OR MORE OF THE WHOLE OR BROKEN KERNELS.

A. Determine the number of paddy kernels on a representative portion of 500 grams of unmilled brown rice for processing.

1. Divide-out a representative portion of between 475 and 525 grams.

2. Add or remove kernels (by finger-pinching, not pouring) until the required portion is obtained.

B. Determine the percentage of paddy kernels on a representative portion of not less than 50 grams of unmilled brown rice for processing.

C. Record the number or percent of paddy kernels on the work record and the certificate. Record the percent to the nearest tenth percent.

D. If the rice contains 50 percent or more of paddy kernels, consider the rice to be rough rice and refer to Chapter 3, "Inspection of Rough Rice," for additional information.

4.23
SEEDS

SEEDS. WHOLE OR BROKEN SEEDS OF ANY PLANT OTHER THAN RICE.

OBJECTIONABLE SEEDS. WHOLE OR BROKEN SEEDS OTHER THAN RICE, EXCEPT SEEDS OF ECHINOCHLOA CRUSGALLI (COMMONLY KNOWN AS BARNYARD GRASS, WATERGRASS, AND JAPANESE MILLET).

A. Determine objectionable seeds and non-objectionable seeds on a representative portion of approximately 500 grams of unmilled brown rice for processing.

1. Divide-out a representative portion of between 475 and 525 grams.

2. Add or remove kernels (by finger-pinching, not pouring) until the required portion is obtained.

B. Record the number of objectionable seeds and non-objectionable seeds on the work record.

C. Record the number of objectionable seeds on the certificate.

1. Add the number of objectionable seeds to the number of heat-damaged kernels and record the sum on the work record and the certificate.

2. Add the number of total seeds (objectionable seeds and non-objectionable seeds) to the number of heat-damaged kernels and record the sum on the work record and the certificate.

4.24 HEAT-DAMAGED KERNELS

HEAT-DAMAGED KERNELS. WHOLE OR BROKEN KERNELS OF RICE WHICH ARE MATERIALLY DISCOLORED AND DAMAGED AS A RESULT OF HEATING AND PARBOILED KERNELS IN NONPARBOILED RICE WHICH ARE AS DARK AS, OR DARKER IN COLOR THAN, THE INTERPRETIVE LINE FOR HEAT-DAMAGED KERNELS.

A. Determine the number of heat-damaged kernels on a representative portion of approximately 500 grams of well-milled brown rice for processing.

1. Divide-out a representative portion of between 475 and 525 grams.

2. Add or remove kernels (by finger-pinching, not pouring) until the required portion is obtained.

B. Remove and weigh the heat-damaged kernels. Consider each 0.02 gram of heat-damaged kernels as "one heat-damaged kernel in 500 grams." Round the results to the lowest number. For example:

0.01 gram of HT = 0 HT 0.03 gram of HT = 1 HT
0.02 gram of HT = 1 HT 0.04 gram of HT = 2 HT

C. When it is determined by general observation that the 500-gram portion probably contains 75 or more heat-damaged kernels, divide the 500-gram portion into 2 portions: a 100-gram portion and a 400-gram portion.

1. Examine the 100-gram portion for heat-damaged kernels.

2. If the 100-gram portion contains 25 or more heat-damaged kernels, multiply the number of kernels found by 5.

3. If the 100-gram portion contains less than 25 heat-damaged kernels, examine the 400-gram portion and add the number of heat-damaged kernels found in both portions together.

D. Record the number of heat-damaged kernels on the work record and the certificate.

E. Add the number of heat-damaged kernels to the number of total seeds and record the sum on the work record and the certificate.

4.25
RED RICE
AND
DAMAGED
KERNELS

RED RICE. WHOLE OR BROKEN KERNELS OF RICE ON WHICH THE BRAN IS DISTINCTLY RED IN COLOR.

DAMAGED KERNELS. WHOLE OR BROKEN KERNELS OF RICE WHICH ARE DISTINCTLY DISCOLORED OR DAMAGED BY WATER, INSECTS, HEAT, OR ANY OTHER MEANS (INCLUDING PARBOILED KERNELS IN NONPARBOILED RICE AND SMUTTY KERNELS). "HEAT-DAMAGED KERNELS" SHALL NOT FUNCTION AS DAMAGED KERNELS.

A. Determine red rice and damaged kernels (other than damaged by heat and parboiled kernels in nonparboiled rice) on a representative portion of not less than 25 grams of unmilled brown rice for processing.

B. Determine kernels damaged by heat and parboiled kernels in nonparboiled rice on a representative portion of not less than 25 grams of well-milled brown rice for processing.

C. Red rice is rice that has a streak of red bran one-half or more the length of the kernel, or two or more streaks that total one-half or more the length of the kernel. A kernel or a piece of kernel of rice that does not have sufficient red bran to be considered as red rice shall be considered as long grain, medium grain, or short grain rice, as appropriate.

D. The major types of damaged kernels are as follows:

1. Insect-Bored Kernels. Whole and broken kernels of rice that have been bored by insects. Kernels that are only slightly eaten by insects and are clean in appearance shall be considered as sound kernels.

2. Fungus-Damaged or "Pecky" Kernels. Whole and broken kernels of rice that have one or more black, brown, red, or other discolored spots or areas on them caused by fungus growth or insects.

3. Kernels Damaged by Heat. Whole and broken kernels of rice that have been discolored by heat but are lighter in color than the interpretive line for heat-damaged kernels.

4. Parboiled Rice in Nonparboiled Rice. Parboiled kernels in nonparboiled rice that are lighter in color than the interpretive line for heat-damaged kernels.

5. Other Damaged Kernels. Whole and broken kernels of rice that are distinctly discolored or damaged from causes other than those listed above shall be considered as damaged kernels. However, those whole and broken kernels that show sheller marks, but are otherwise not distinctly discolored or damaged, shall not function as damaged kernels.

E. Record the percent of red rice and damaged kernels on the work record and the certificate to the nearest tenth percent.

NOTE: Damaged kernels are the sum of the percentage of kernels damaged by heat and/or parboiled kernels in non-parboiled rice plus the percentage of all other damaged kernels.

4.26 CHALKY KERNELS

CHALKY KERNELS. WHOLE OR BROKEN KERNELS OF RICE WHICH ARE ONE-HALF OR MORE CHALKY.

A. Determine chalky kernels on a representative portion of not less than 25 grams of unmilled brown rice for processing.

B. Record the percent of chalky kernels on the work record and the certificate to the nearest tenth percent.

4.27 BROKEN KERNELS REMOVED BY A 6 PLATE OR A 6 1/2 SIEVE

6 PLATE. A LAMINATED METAL PLATE 0.142-INCH THICK, WITH A TOP LAMINA 0.051-INCH, PERFORATED WITH ROWS OF ROUND HOLES 0.0938 (6/64) INCH IN DIAMETER, AND A BOTTOM LAMINA 0.091-INCH THICK, WITHOUT PERFORATIONS.

6 1/2 SIEVE. A METAL SIEVE 0.032-INCH THICK, PERFORATED WITH ROWS OF ROUND HOLES 0.1016 (6 1/2) INCH IN DIAMETER.

A. Determine broken kernels removed by a 6 plate or a 6 1/2 sieve on a representative portion of not less than 50 grams of unmilled brown rice for processing.

B. For southern production rice:

1. Place a 6 plate in the bottom carriage of the rice sizing device.

2. Pour the 50-gram portion on the plate. After the sample is poured, place the emptied triangular pan under the hopper to catch the rice that flows over the plate.

3. Press the starting switch. Allow the machine to run until the rice stops flowing over the plate into the triangular pan.

4. After the rice stops flowing and the machine is turned off, remove the plate and empty their contents into the rectangular container. Lightly tap the bottom of the plate to remove material retained in the perforations of the plate.

5. Hand adjust the material that lodges in the 6 plate to remove any whole kernels, any brokens that obviously do not belong with the 6 plate brokens, any seeds and any related or unrelated material.

C. For western production rice:

Mechanical Sieving Method.

1. Mount a 6-1/2 sieve with a bottom pan on a mechanical sieve shaker.

2. Set the stroke counter for 20 strokes.

3. Follow the procedure for operating the mechanical sieve shaker described in chapter 1, Grain Inspection Handbook, Book II.

4. Return the broken kernels that remain in the perforations of the sieve to the portion that remains on the top of the sieve.

5. Hand adjust the material that passes through the 6-1/2 sieve to remove any whole kernels, any brokens that obviously do not belong with the 6-1/2 sieve brokens, any seeds, and any related or unrelated material.

Hand Sieving Method.

1. Mount a 6-1/2 sieve on a bottom pan.

2. Pour the representative portion in the center of the sieve.

3. Hold the sieve level in both hands with elbows close to the body and the sieve perforations parallel to the direction of movement.

4. In a steady motion, move the sieve from left to right approximately 10 inches, and return from right to left.

5. Repeat the sieving operation 20 times.

6. Return the broken kernels that remain in the perforations of the sieve to the portion that remains on the top of the sieve.

7. Hand adjust the material that passes through the 6-1/2 sieve to remove any whole kernels, any brokens that obviously do not belong with the 6-1/2 sieve brokens, any seeds, and any related or unrelated material.

D. Record the percent of broken kernels removed by a 6-plate or 6-1/2 sieve on the work record and the certificate to the nearest tenth percent.

4.28 BROKEN KERNELS

BROKEN KERNELS. KERNELS OF RICE WHICH ARE LESS THAN THREE-FOURTHS OF WHOLE KERNELS.

NOTE: This factor is not provided for under the U.S. Standards for Brown Rice for Processing, but may be determined upon request.

A. Determine broken kernels on a representative portion of not less than 25 grams of unmilled brown rice for processing.

B. Remove the broken kernels from the 25-gram portion using any device or method that will facilitate the separation of the broken kernels from the whole kernels.

C. Record the percent of broken kernels on the work record and the certificate to the nearest tenth percent.

4.29 OTHER TYPES

OTHER TYPES. (1) WHOLE KERNELS OF: (i) LONG GRAIN RICE IN MEDIUM OR SHORT GRAIN RICE, (ii) MEDIUM GRAIN RICE IN LONG OR SHORT GRAIN RICE, (iii) SHORT GRAIN RICE IN LONG OR MEDIUM GRAIN RICE, AND (2) BROKEN KERNELS OF (i) LONG GRAIN RICE IN MEDIUM OR SHORT GRAIN RICE AND (ii) BROKEN KERNELS OF MEDIUM OR SHORT GRAIN RICE IN LONG GRAIN RICE.

NOTE: BROKEN KERNELS OF MEDIUM GRAIN RICE IN SHORT GRAIN RICE AND BROKEN KERNELS OF SHORT GRAIN RICE IN MEDIUM GRAIN RICE SHALL NOT BE CONSIDERED OTHER TYPES.

A. Determine other types on a representative portion of not less than 25 grams of unmilled brown rice for processing.

B. Record the percent of other types on the work record and the certificate to the nearest tenth percent. If the amount of other types exceeds 10.0 percent, grade the rice "Mixed brown rice for processing."

4.30 WELL-MILLED KERNELS

WELL-MILLED KERNELS. WHOLE OR BROKEN KERNELS OF RICE FROM WHICH THE HULLS AND PRACTICALLY ALL OF THE GERMS AND THE BRAN LAYER HAVE BEEN REMOVED.

A. Determine well-milled kernels on a representative portion of not less than 25 grams of unmilled brown rice for processing.

B. Record the percent of well-milled kernels on the work record and the certificate to the nearest tenth percent.

4.31 WHOLE KERNELS

WHOLE KERNELS. UNBROKEN KERNELS OF RICE AND BROKEN KERNELS OF RICE WHICH ARE AT LEAST THREE-FOURTHS OF AN UNBROKEN KERNEL.

A. Determine whole kernels on a representative portion of not less than 25 grams of unmilled brown rice for processing when determining the whole kernels in class and on not less than 40 grams when determining the milling yield or milling analysis.

B. Remove the whole kernels from the representative portion using any device or method that will facilitate the separation of the whole kernels from the broken kernels.

C. For class, record the percent of whole kernels on the work record and the certificate to the nearest tenth percent. For milling yield or milling analysis, record the percent of whole kernels on the work record and the certificate to the nearest whole percent.

4.32 RELATED AND UNRELATED MATERIAL

RELATED MATERIAL. ALL BY-PRODUCTS OF A PADDY KERNEL, SUCH AS THE OUTER GLUMES, LEMMA, PALEA, AWN, EMBRYO, AND BRAN LAYERS.

UNRELATED MATERIAL. ALL MATTER OTHER THAN RICE, RELATED MATERIAL, AND SEEDS.

NOTE: Live and dead insects found in the representative portion shall be included with the unrelated material.

A. Determine related and unrelated material on a representative portion of not less than 100 grams of unmilled brown rice for processing.

B. Record the percent of related and unrelated material on the work record. If the amount of related material exceeds 0.2 percent or the amount of unrelated material exceeds 0.1 percent, record the percent of related or unrelated material on the certificate and grade the rice "U.S. Sample grade."

4.33 SMUTTY BROWN RICE FOR PROCESSING/ SMUTTY KERNELS

SMUTTY BROWN RICE FOR PROCESSING SHALL BE RICE WHICH CONTAINS MORE THAN 3.0 PERCENT OF SMUTTY KERNELS.

SMUTTY KERNELS. WHOLE OR BROKEN KERNELS OF RICE WHICH ARE DISTINCTLY INFECTED BY SMUT.

A. Determine smutty kernels on a representative portion of not less than 15 grams of unmilled brown rice for processing.

B. Record the percent of smutty kernels on the work record and the certificate to the nearest tenth percent. If the rice contains more than 3.0 percent smutty kernels, consider the rice to be "smutty" and show the special grade "Smutty" on the gradeline of the certificate.

NOTE: Except as specified, all grades and grade requirements in the U.S. Standards for Brown Rice for Processing apply to "Smutty Brown Rice for Processing."

4.34 PARBOILED BROWN RICE FOR PROCESSING/ UNGELATINIZED KERNELS

PARBOILED BROWN RICE FOR PROCESSING SHALL BE RICE IN WHICH THE STARCH HAS BEEN GELATINIZED BY SOAKING, STEAMING, AND DRYING. GRADE U.S. NOS. 1 TO U.S. NO. 5, INCLUSIVE, SHALL CONTAIN NOT MORE THAN 10.0 PERCENT OF UNGELATINIZED KERNELS. GRADES U.S. NO. 1 AND U.S. NO. 2 SHALL CONTAIN NOT MORE THAN 0.1 PERCENT, GRADES U.S. NO. 3 AND U.S. NO. 4 NOT MORE THAN 0.2 PERCENT, AND GRADE U.S. NO. 5 NOT MORE THAN 0.5 PERCENT OF NONPARBOILED RICE.

NOTE: THE MAXIMUM LIMITS FOR "CHALKY KERNELS," "HEAT-DAMAGED KERNELS," AND "KERNELS DAMAGED BY HEAT" SHOWN IN SECTION 68.261 ARE NOT APPLICABLE TO THE SPECIAL GRADE "PARBOILED BROWN RICE FOR PROCESSING."

UNGELATINIZED KERNELS. WHOLE OR BROKEN KERNELS OF PARBOILED RICE WITH DISTINCT WHITE OR CHALKY AREAS DUE TO INCOMPLETE GELATINIZATION OF THE STARCH.

A. When a detailed examination is necessary to determine nonparboiled or ungelantinized kernels, make this determination on a representative portion of not less than 25 grams of well-milled brown rice for processing.

B. Record the percent of ungelatinized kernels on the work record and certificate to the nearest tenth percent.

NOTE: Except as specified, all grades and grade requirements in the U.S. Standards for Brown Rice for Processing apply to "Parboiled Brown Rice for Processing."

4.35 GLUTINOUS BROWN RICE FOR PROCESSING/ NONCHALKY KERNELS

GLUTINOUS BROWN RICE FOR PROCESSING SHALL BE SPECIAL VARIETIES OF RICE (ORYZA SATIVA L. GLUTINOSA) WHICH CONTAIN MORE THAN 50 PERCENT CHALKY KERNELS. FOR LONG GRAIN, MEDIUM GRAIN, AND SHORT GRAIN BROWN RICE FOR PROCESSING, GRADE U.S. NO. 1 SHALL CONTAIN NOT MORE THAN 1.0 PERCENT OF NONCHALKY KERNELS, GRADE U.S. NO. 2 NOT MORE THAN 2.0 PERCENT OF NONCHALKY KERNELS, GRADE U.S. NO. 3 NOT MORE THAN 4.0 PERCENT OF NONCHALKY KERNELS, GRADE U.S. NO. 4 NOT MORE THAN 6.0 PERCENT OF NONCHALKY KERNELS, AND GRADE U.S. NO. 5 NOT MORE THAN 10.0 PERCENT OF NONCHALKY KERNELS

NOTE: THE MAXIMUM LIMITS FOR "CHALKY KERNELS" IN SECTION 68.261 ARE NOT APPLICABLE TO THE SPECIAL GRADE "GLUTINOUS BROWN RICE FOR PROCESSING."

A. Determine nonchalky kernels on a representative portion of not less than 25 grams of unmilled brown rice for processing.

B. Record the percent of nonchalky kernels on the work record and the certificate to the nearest tenth percent. If the rice is a glutinous variety and contains less than 50.0 percent nonchalky kernels, consider the rice to be "glutinous" and show the special grade "Glutinous" on the gradeline of the certificate.

NOTE: Except as specified, all grades and grade requirements in the U.S. Standards for Brown Rice for Processing apply to "Glutinous Brown Rice for Processing."

4.36 AROMATIC BROWN RICE FOR PROCESSING

AROMATIC BROWN RICE FOR PROCESSING SHALL BE SPECIAL VARIETIES OF RICE (ORYZA SATIVA L. SCENTED) THAT HAVE A DISTINCTIVE AND CHARACTERISTIC AROMA; E.G., BASMATI AND JASMINE RICE.

A. Determine aromatic on the basis of the odor of the lot as a whole, the representative sample as a whole, or a representative portion of well-milled brown rice for processing.

B. If the rice is an aromatic variety and has an odor common to such rice, consider the rice to be "aromatic" and show the special grade "Aromatic" on the gradeline of the certificate.

4.37 INTERPRETIVE LINE SLIDES AND SAMPLES

A. The interpretive line slide (ILS) system assists inspectors in making subjective grading decisions. This system consists of a portable tabletop transparency viewer and photographic slide transparencies. The viewer uses a precisely controlled light source of low intensity designed to provide a standard picture and to protect the slide. Therefore, only use the special viewer for ILS. Other light sources, such as a regular slide projector, may provide a distorted picture and damage the ILS. Use of such a projector is not prohibited; but, once used in this manner, the slides may not be used for official purposes.

Table 4
Currently Available Interpretative Line Slides

RICE	1.0	OBJECTIONABLE SEEDS
RICE	1.1	NON-OBJECTIONABLE SEEDS (CALIFORNIA)
RICE	1.2	NON-OBJECTIONABLE SEEDS (SOUTHERN)
RICE	2.0	HEAT DAMAGED KERNELS
RICE	2.1	KERNELS DAMAGED BY HEAT
RICE	2.7	KERNELS DAMAGED BY INSECTS (PECK)
RICE	6.1	PADDY KERNELS IN MILLED RICE (PARTIALLY UNHULLED)
RICE	9.0	RELATED MATERIAL
RICE	9.1	UNRELATED MATERIAL

B. Interpretive line samples are actual samples enclosed in clear plastic containers. Overexposure to direct light can result in the bleaching of these samples. Therefore, interpretative line samples should be stored in cool, dark places.

(RESERVED)

FGIS FORM-911, "RICE SAMPLE TICKET"

I 56201	CERTIFICATE NO. F-17983	TO BOARD	FIELD OFFICE Beaumont
LOCATION Public Docks	QUANTITY 1 Barge lot (Bulk)		
IDENTIFICATION SX 793 B	MOVEMENT (Circle)		
SEAL BROKEN	01 IN / 02 (OUT) / 03 (BULK) / 04 EXPORT / 05 CAR		
SEAL APPLIED	06 TRUCK / 07 LOCAL / 08 BAGGED / 09 SUB		
SAMPLER JR	DATE SAMPLED 5/1/92	LAB. NO.	CLASS LGBR
IDENTIFYING MARKS			

FACTOR	GRAMS PORT.	GRAMS SEP.	ACG INSP.	SUPV.	BOARD
01 C					
02 CH	25.31	.22	0.9	0.3	
03 FM					
04 ~~HT~~ HDF	500		2	2	
05 HT/OBS	500		2/4	2/4	
06 M			13.7	13.6	
07 MD					
08 NOBS			0	0	
09 OT					
10 P	50.83	.58	1.1	1.2	
11 RR&DK	25.31	.23	0.9	1.0	

FACTOR	GRAMS PORT.	GRAMS SEP.	ACG INSP.	SUPV.	BOARD
12 TBK					
13 TS-HT#			6	6	
14 4S					
15 5P/5½S					
16 6P/6S					
17 6½S					
18 30S					
19 WK	45.95	40.81	77.3	76.2	
20 TR	750	652	87.1	87.1	
21					
22					

REMARKS

88.8 × 87.1 = 77.3
652 ÷ 750 = 87.1

ACG OR INSPECTOR John Smith	CODE NO. 6789	DATE INSP. 5/9/92
ACG OR INSPECTOR'S GRADE U.S. No. 2 LGBR	MY 77-87	
SUPERVISOR Bob Jones	DATE SUPV. 5/9/92	REVIEWED BY / DATE REVIEWED
SUPERVISOR'S GRADE U.S. No. 2 LGBR MY 76-87	BOARD'S GRADE	

FORM FGIS-911 (2-89) RICE SAMPLE TICKET USDA-FGIS
(Edition of 6-83 may be used.)

Attachment 2
RICE INSPECTION HANDBOOK
Chapter 4
Inspection of Brown Rice

GRADES AND GRADE REQUIREMENTS FOR BROWN RICE FOR PROCESSING

Grading Factors	Grades U.S. Nos.				
	1	2	3	4	5
	Maximum number in 500 grams				
Paddy Kernels	20	-	-	-	-
Seeds and Heat-Damaged Kernels Total (Singly or Combined)	10	40	70	100	150
Heat-Damaged Kernels	1	2	4	8	15
Objectionable Seeds	2	10	20	35	50
	Maximum limit (percent)				
Paddy Kernels	-	2.0	2.0	2.0	2.0
Red Rice and Damaged Kernels (Singly or Combined)	1.0	2.0	4.0	8.0	15.0
Chalky Kernels 1/ 2/	2.0	4.0	6.0	8.0	15.0
Broken Kernels Removed by a 6 Plate or 6 Sieve 3/	1.0	2.0	3.0	4.0	6.0
Other Types 4/	1.0	2.0	5.0	10.0	10.0
Well-Milled Kernels	1.0	3.0	10.0	10.0	10.0

U.S. Sample grade shall be brown rice for processing which (a) does not meet the requirements for any of the grades from U.S. No. 1 to U.S. No. 5, inclusive; (b) contains more than 14.5 percent of moisture; (c) is musty or sour, or heating; (d) has any commercially objectionable foreign odor; (e) contains more than 0.2 percent of related material or more than 0.1 percent of unrelated material; (f) contains 2 or more live weevils or other live insects; or (g) is otherwise of distinctly low quality.

1/ For the special grade Parboiled brown rice for processing, see section 68.263(a).
2/ For the special grade Glutinous brown rice for processing, see section 68.263(c).
3/ Plates should be used for southern production rice and sieves should be used for western production rice, but any device or method which gives equivalent results may be used.
4/ These limits do not apply to Mixed Brown Rice for Processing.